

WHAT IS CLAIMED IS:

1. A solid polymer electrolyte fuel cell having a cation exchange membrane made of a perfluorocarbon polymer having sulfonic acid groups as an electrolyte,
- 5 wherein the cation exchange membrane has been stretched and has a larger surface area than it had before the stretching.
2. The solid polymer electrolyte fuel cell according to Claim 1, wherein the cation exchange membrane has a
- 10 surface area which is 5 to 100% larger than it had before the stretching.
3. The solid polymer electrolyte fuel cell according to Claim 1, wherein the cation exchange membrane has been stretched by drying the cation exchange membrane at a
- 15 high water content while fixing the periphery of the membrane.
4. The solid polymer electrolyte fuel cell according to Claim 1, wherein the cation exchange membrane has been stretched biaxially.
- 20 5. The solid polymer electrolyte fuel cell according to Claim 1, wherein the perfluorocarbon polymer is a copolymer comprising polymerization units derived from $\text{CF}_2=\text{CF}_2$ and polymerization units derived from $\text{CF}_2=\text{CF}-\text{(OCF}_2\text{CFX})_m-\text{O}_p-(\text{CF}_2)_n-\text{SO}_3\text{H}$ (wherein X is a fluorine atom or
- 25 a trifluoromethyl group, m is an integer of from 0 to 3, n is an integer of from 0 to 12, and p is 0 or 1, provided that when n=0, p=0).

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6. The solid polymer electrolyte fuel cell according to
Claim 1, wherein the cation exchange membrane contains
from 0.1 to 50 mass% of fibrils, a woven fabric or a
nonwoven fabric made of a fluorine-containing polymer.
- 5 7. A method of producing a solid polymer electrolyte
fuel cell having a cation exchange membrane made of a
perfluorocarbon polymer having sulfonic acid groups as an
electrolyte and gas diffusion electrodes on both sides of
the electrolyte, which comprising stretching a membrane
- 10 made of a perfluorocarbon polymer having sulfonic acid
groups to increase the surface area from the original
surface area and placing gas diffusion electrodes on both
sides of the membrane to use the membrane as the cation
exchange membrane.
- 15 8. The method of producing a solid polymer electrolyte
fuel cell according to Claim 7, wherein the surface area
of the membrane is increased by 5 to 100% by stretching.
9. The method of producing a solid polymer electrolyte
fuel cell according to Claim 7, wherein the membrane is
20 stretched biaxially.
10. The method of producing a solid polymer electrolyte
fuel cell according to Claim 9, wherein the membrane is
stretched biaxially after extensible films are placed on
both sides of the membrane.

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